

Application No. 10/616,611
Docket No. DP-308655
Amendment dated October 7, 2005
Reply to Office Action of July 7, 2005

REMARKS

In the Office Action, the Examiner reviewed claims 1-39 of the above-identified US Patent Application, with the result that the specification was objected to and all of the claims were rejected under 35 USC §103. In response, Applicant has amended the specification and claims as set forth above. More particularly:

The specification has been amended at paragraph [0024] to correct a typographical error.

Independent claim 1 has been amended to incorporate limitations of its dependent claims 2, 5, and 7, to specify that the first and second members (20) are cantilevered as shown and described in reference to Figures 1-5, and to specify that the third aperture (28) is between and discrete from the first and second apertures (14) as shown and described in reference to Figures 1-5.

In view of their limitations being incorporated into claim 1, claim 5 has been canceled without prejudice and claims 2 and 7 have been amended to recite limitations that find support in Figures 4 and 5 and Figures 1-5, respectively.

Dependent claim 13 has been amended to specify that at least one of the conductive runners (30) is on a surface defined by at least one of the peripheral borders (24), as opposed to merely an edge of one of the apertures

Application No. 10/616,611
Docket No. DP-308655
Amendment dated October 7, 2005
Reply to Office Action of July 7, 2005

(14), as shown in Figure 1 and disclosed in paragraph [0017] ("The portions of the runners 30 along the edges of the slots 14 are preferably formed by plating the walls of the slots 14").

Dependent claim 15 has been rewritten in independent form to include all of the limitations of its base claim 1, and to further require a third set of multiple apertures (816) between the first and second sets of multiple apertures (814), as shown in Figure 11.

Dependent claim 28 has been rewritten in independent form to include all of the limitations of its base claim 1, and to further require that the first and second cantilevered members (720) extend in opposite directions, as shown in Figure 10.

Independent claim 31 has been amended to incorporate a limitation from its dependent claim 32, and to specify that the surface-mount device (18) is mounted over the central aperture (28) as shown in Figure 2.

In view of its limitations being incorporated into claim 31, dependent claim 32 has been amended similar to claim 2.

Dependent claim 38 has been amended similar to claim 13.

The dependent claims of claims 1, 15, 28, and 31 have been reviewed and amended as necessary for consistency with their amended parent claims.

Application No. 10/616,611
Docket No. DP-308655
Amendment dated October 7, 2005
Reply to Office Action of July 7, 2005

Finally, claims 5 and 18-27 have been canceled without prejudice to Applicant.

Applicant believes that the above amendments do not present new matter. Favorable reconsideration and allowance of remaining claims 1-4, 6-17, and 28-39 are respectfully requested in view of the above amendments and the following remarks.

Objection to the Specification

The Examiner objected to the specification for citing in incorrect reference number in Figure 6. The basis for the objection is overcome with the above-noted amendment to the specification, and therefore Applicant respectfully requests withdrawal of the objection.

Rejections under 35 USC §103

Independent claims 1, 15, 28, and 31 and their remaining dependent claims 2-4, 6-14, 16, 17, 28-39, and 32-39 were rejected under 35 USC §103(a) as being unpatentable over SIR Reg. No. H921 to Wannemacher in view of one or more of the following references: Applicant's admitted prior art (the APA), U.S. Patent No. 6064576 to Edwards et al. (Edwards), DE 4424984 to Busch et al. (Busch), U.S. Patent No. 5699231 to ElHatem et al. (ElHatem),

Application No. 10/616,611
Docket No. DP-308655
Amendment dated October 7, 2005
Reply to Office Action of July 7, 2005

U.S. Patent No. 6894372 to Corisis et al. (Corisis), and DE 04325499 to Schahier. Applicant respectfully requests reconsideration of these rejections in view of the claims as amended and the following comments.

Under the first §103 rejection, remaining claims 1-3, 5-9, 11, 15, 17, 31-34, and 36 were rejected on the basis of Wannemacher and the APA for the reason that Wannemacher discloses the claimed invention except for the substrate and device are formed of materials with different coefficients of thermal expansion, and that the APA discloses such limitations.

As amended, each of independent claims 1 and 31 requires (using reference numbers from Figures 1 and 2) first and second apertures 14 delineating first and second cantilevered members 20, respectively, to which a surface-mount device 18 is attached, and a third aperture 28 between and discrete from the first and second apertures 14.

Neither Wannemacher nor the APA teach or suggest such limitations. Instead, Wannemacher attaches a device 17 to cantilevered portions 21 and 22 defined by a continuous H-shaped slot 16 over which the device 17 is mounted (Figures 1 and 2), or to bridge portions 41 and 43 (Figure 3), or to cantilevered portions 57 and 58 defined by a continuous E-shaped slot 56 over which the device 17 is mounted (Figure 4). While admittedly ElHatem

Application No. 10/616,611
Docket No. DP-308655
Amendment dated October 7, 2005
Reply to Office Action of July 7, 2005

discloses discrete apertures 14 located beneath circuit devices (e.g., 30), nothing in Wannemacher, the APA, or ElHatem would motivate one to modify Wannemacher's continuous apertures 21, 22, and 56 by separating them to form discrete apertures, since the purpose of ElHatem's apertures is to permit the flow of potting material beneath ElHatem's devices 30 and Wannemacher's continuous apertures 16 and 56 are already capable of providing this function. It is only after reading Applicant's specification that the benefits would be evident for a discrete central aperture 28 between a pair of apertures 14 that form cantilevered members 20.

In view of the above, Applicant respectfully requests withdrawal of the rejection under 35 USC §103 of independent claims 1 and 31 and their remaining dependent claims on the basis of the combination of Wannemacher and the APA.

As amended, independent claim 15 (using reference numbers from Figure 11) requires first, second, and third sets of multiple apertures 814 and 816 that delineate a device attachment region 816, in which the third set of multiple apertures 816 is between the first and second sets of multiple apertures 814, the first and third sets of multiple apertures 814 and 816 delineate a first compliant member 820 therebetween, the second and third sets of multiple apertures 814 and 816 delineate a second compliant member

Application No. 10/616,611
Docket No. DP-308655
Amendment dated October 7, 2005
Reply to Office Action of July 7, 2005

820 therebetween, and a surface-mount device is mounted over the third set of multiple apertures 816.

Neither Wannemacher nor the APA teach or suggest defining multiple compliant members, each with multiple sets of multiple apertures. Instead, Wannemacher defines compliant portions 21 and 22 with a continuous H-shaped slot 16 (Figures 1 and 2), or compliant portions 41 and 43 with at most one set of multiple apertures 37 and 38 (Figure 3), or compliant portions 57 and 58 with a continuous E-shaped slot 56 (Figure 4). Therefore, to arrive at Applicant's invention, one skilled in the art would be required to further modify the teachings of Wannemacher and the APA. However,

The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the *prior art* suggested the desirability of the combination. (Emphasis added.)

MPEP 2143.01, citing *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

See also *In re Fritch*, 23 USPQ2d 1780, 1783-1784 (Fed. Cir. 1992).

Consequently, the prior art itself must suggest the desirability of the modification. Because the prior art of record does not teach or suggest the motivation for such a modification to the combination of Wannemacher and the APA, Applicant respectfully requests withdrawal of the rejection under 35 USC

Application No. 10/616,611
Docket No. DP-308655
Amendment dated October 7, 2005
Reply to Office Action of July 7, 2005

§103 of independent claim 15 and its dependent claims on the basis of the combination of Wannemacher and the APA.

Under the second §103 rejection, dependent claims 4, 10, 16, and 35 were rejected on the basis of Wannemacher and the APA in further view of Edwards for the reason that Edwards discloses a C-shaped aperture 36. Claims 4, 10, 16, and 35 depend from claims 1, 15, and 31, addressed above under the first §103 rejection based on Wannemacher and the APA. Because Edwards' teachings do not make up for the lack of teachings in Wannemacher and the APA as discussed under the first §103 rejection, Applicant respectfully requests withdrawal of the second rejection under 35 USC §103.

Under the third §103 rejection, claims 12, 13, and 37 were rejected on the basis of Wannemacher and the APA in further view of Busch for the reason that Busch discloses "in Fig. 2. the circuit assembly 1 wherein at least one of the conductive runners 11 extends along a surface of the substrate between the first 7 and second 7 apertures." Claims 12, 13, and 37 depend from claims 1 and 31, addressed above under the first §103 rejection based on Wannemacher and the APA. Because Busch's teachings do not make up for the lack of teachings in Wannemacher and the APA as discussed under the

Application No. 10/616,611
Docket No. DP-308655
Amendment dated October 7, 2005
Reply to Office Action of July 7, 2005

first §103 rejection, Applicant respectfully requests withdrawal of the third rejection under 35 USC §103 of dependent claims 12, 13, and 37.

Under the fourth §103 rejection, claims 14 and 39 were rejected on the basis of Wannemacher and the APA in further view of ElHatem for the reason that ElHatem discloses filling first and second apertures with an electrically-nonconductive material that differs from the materials of the substrate and devices thereon. Claims 14 and 39 depend from claims 1 and 31, addressed above under the first §103 rejection based on Wannemacher and the APA. Because ElHatem's teachings do not make up for the lack of teachings in Wannemacher and the APA as discussed under the first §103 rejection, Applicant respectfully requests withdrawal of the fourth rejection under 35 USC §103 of dependent claims 14 and 39.

The fifth §103 rejection has been overcome by the cancellation of rejected claims 25 and 26.

Under the sixth §103 rejection, independent claim 28, its dependent claims 29 and 30, and claim 38 (which depends from claim 31) were rejected on the basis of Wannemacher and Schahier for the reason that Wannemacher

Application No. 10/616,611
Docket No. DP-308655
Amendment dated October 7, 2005
Reply to Office Action of July 7, 2005

discloses the claimed invention except for an S-shaped aperture as recited in claim 28 and conductive runners as recited in claim 38, and that Schahier discloses such limitations.

As amended, independent claim 28 requires (using reference numbers from Figure 10) the S-shaped aperture 713 to have first and second portions 714 and 728 that delineate a first cantilevered member 720, a third portion 714 that with the second portion 728 delineates a second cantilevered member 720, and the first and second cantilevered members 720 extend in opposite directions. Wannemacher, the APA, and Schahier, alone or in combination, do not teach or suggest such limitations. Instead, Schahier discloses cantilevered portions 24 that extend in the very same direction. Therefore, to arrive at Applicant's invention, one skilled in the art would be required to further modify the teachings of Wannemacher, the APA, and Schahier. However, in view of MPEP 2143.01 *infra*, the prior art itself must suggest the desirability of the modification. Because the prior art of record does not teach or suggest the motivation for such a modification to the combination of Wannemacher, the APA, and Schahier, Applicant respectfully requests withdrawal of the rejection under 35 USC §103 of independent claim 28 and its dependent claims on the basis of the combination of Wannemacher, the APA, and Schahier.

Application No. 10/616,611
Docket No. DP-308655
Amendment dated October 7, 2005
Reply to Office Action of July 7, 2005

As amended, dependent claim 38 (using reference numbers from Figure 1) requires that each slot 14 defines an outward surface facing the device attachment region 16 and an inward surface facing away from the device attachment region 16, and that the conductive runners 36 are continuous on the outward surface and then the inward surface of each of the first and second slots 14. In contrast, Wannemacher, the APA, and Schahier do not teach or suggest a conductor on a surface defined by an aperture, but at best only a surface of a substrate near and along an aperture. Therefore, to arrive at Applicant's invention, one skilled in the art would be required to further modify the teachings of Wannemacher, the APA, and Schahier. However, in view of MPEP 2143.01 *infra*, the prior art itself must suggest the desirability of the modification. Because the prior art of record does not teach or suggest the motivation for such a modification to the combination of Wannemacher, the APA, and Schahier, Applicant respectfully requests withdrawal of the rejection under 35 USC §103 of dependent claim 38 on the basis of the combination of Wannemacher, the APA, and Schahier.

Under the seventh §103 rejection, independent claim 31 was again rejected on the basis of Wannemacher and the APA, i.e., the same references as applied under the first §103 rejection. Applicant believes the seventh §103

Application No. 10/616,611
Docket No. DP-308655
Amendment dated October 7, 2005
Reply to Office Action of July 7, 2005

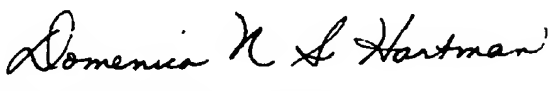
rejection is overcome for the same reasons as set forth in Applicant's remarks to the first §103 rejection, and therefore respectfully requests withdrawal of this rejection.

Closing

In view of the above, Applicant believes that all issues outstanding from the Office Action have been addressed, and that the claims define patentable novelty over all the references, alone or in combination, of record. It is therefore respectfully requested that this patent application be given favorable reconsideration.

Should the Examiner have any questions with respect to any matter now of record, Applicant's representative may be reached at (219) 462-4999.

Respectfully submitted,

By 
Domenica N.S. Hartman
Reg. No. 32,701

October 7, 2005
Hartman & Hartman, P.C.
Valparaiso, Indiana 46383
TEL.: (219) 462-4999
FAX: (219) 464-1166